

**Record of a Meeting between Jon Broome & Glenn Hide
at the IoD London 21st May 09 to discuss
The Application of Critical Chain project management (CCpm)
under the NEC contract**

The meeting was held in a constructive learning mode.

We both agreed that, on the right project, CCpm has the potential to save time and increase certainty. However, certain issues need to be addressed regardless and the 'right' project needs to be identified. See below.

It was also agreed that there is a spectrum of "all out" CCpm (as expounded by the disciples of Eli Goldratt) and traditional programming. In reality, people do some of the stuff held up as CCpm.

Key Issues :

1. In introducing the concept of CCpm , Glenn expressed concerns that many Contractors programming skills aren't up to running an NEC contract let alone under with the added complication of introducing CCpm. Jon understands this view !
2. On projects where there are frequent time constraints, the advantages are likely to be lost. For instance on projects where :
 - there is night working every night before returning the asset back to operations as per the Underground and / or
 - where 3rd parties outside the control of the client and the CCpm methodology are frequently coming in. E.g. Statutory Undertakers.
3. Understanding of what CCpm is trying to achieve and how it works which leads onto cultural change. Critical to this is overcoming the false illusion of certainty in programming durations and not 'hitting people over the head' for exceeding the most likely time for their activity. Otherwise they will revert to type and just give longer durations with lots of time risk allowance in it.
4. Absolutely critical to the effective operation of the CCpm is software which automates some of the calculations and provides transparency for progress. In particular :
 - ❖ Calculates (& re-calculates when there is a change in logic links for whatever reason) the critical chain and feeder chains and their buffers.
 - ❖ Effectively monitors progress and 'buffer burn' along each chain. This is essential not only for managing the project under CCpm generally, but also for evaluating CEs.
 - ❖ Adds in TRA to the buffer at the end of chains for when there is compensation event.

JB is aware that Microsoft Project has 'add-ons' to enable the above to happen, which would be of use when trialling the CCpm. However, to fully maximise its effectiveness and efficiency, you would probably need dedicated software which is also out there and probably costs a lot !

5. Lack of 'What's in it for Me' under current subcontracting arrangements. Under CCpm subcontractors would be given updated best estimates of when they could come in to start as soon as the previous activity had finished. They might therefore have to come off activities (on other sites) creating inefficiencies for them. Consequently, reward systems would have to be structured so they gained more from project efficiencies (i.e. a share of the savings from early **project** finishes) than they suffered through local inefficiencies (from coming off and then back onto activities).

If these points are addressed, then a number of points that Glenn raised fall away or are no more of a problem compared with traditional programming. If they are not addressed, then its implementation would be problematic to say the least.

Ideal Circumstances to Trial CCpm.

While the construction industry is hampered in implementing CCpm by the prevalence of subcontracting (see point 5 above), it also has the advantage that projects are more discreet individual entities. Ideal circumstances for a trial would be :

1. There a few external constraints e.g. frequent stoppages due to night working.
2. Resources are based on-site and can be switched to the critical chain when needed (as opposed to being brought in from another site).
3. Resources are in the control of the main contractor i.e. they are his own or with a friendly subcontractor who has bought into the CCpm concepts.
4. There are relatively few subcontracted trades along the critical chain. Otherwise any rewards from a project based incentive mechanism would be too diluted to be motivate.
5. There are not too many non-critical chains to divert attention. Indeed, it might be worthwhile running the other chains as per traditional programming.

These criteria might well apply at an individual as well as corporate level i.e. for personnel new to CCpm, not just a client or contractor.

Unresolved Contractual Issue

The one circumstance that we could think of where we were contractually unsure about the situation was where the Contractor is mid-way through a series of non-critical activities. A compensation event occurs on this non-critical chain which delays him to the extent the new CE activity, inc TRA, puts it onto the critical chain i.e. the new activity inc TRA is longer than the buffer on the critical chain. How is this calculated ?

There seems to be a conflict here between CCpm acknowledging that there is natural variance in durations with the NEC desire for contractual certainty in terms of clear criteria for calculating extra time.

Having thought this through, the Contractors own the TRA / buffer on both the critical chain and feeder chain, regardless of whether progress indicates he is going to finish before the end of the buffers or not. If the Contractor's buffer burn exceeds his rate of progress, then the trend is for him to be late. The two scenarios are :

- ❖ the Contractor has **not** updated his programme to show this. In this instance, the new activity, inc TRA is added onto the feeder chain (albeit with the TRA added to the buffer at the end of the chain) and the Contractor gets the additional overlap time i.e. time for new activity, inc TRA minus free float / critical chain buffer. This is the same as per traditional programming.
- ❖ The Contractor has updated his programme and slipped completion of that chain, inc buffer back. The *PM* could say that this is not realistic as statistically delays and early finishes even themselves out and therefore not accept the programme. Whether he would be justified or not is probably down to the degree of slippage on-site. However, if the programme was accepted, then once more the contractual situation would be the same as that under traditional programming.